

Chapter 9

Using a Virtual Learning Environment to Promote Autonomous Language Learning for Chinese Students

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ABSTRACT

This chapter examines a semester-long Moodle-based programme of monitored quizzes designed to encourage first-year Chinese students at an English medium university in China to engage in English language self-study and autonomous learning. Usage statistics and questionnaire data were collected and analysed in order to investigate overall quiz participation rates, usage patterns across the semester, and the extent to which the programme affected students' attitudes towards self-study. The results indicated that participation rates in the quizzes were high, although activity on the programme pages did decline as the semester progressed. Students also reported via the questionnaire that the programme had helped them learn how to organise their own self-study. However, statistics from Moodle revealed that many participants were not taking the quizzes on a regular, weekly basis, as had been intended, suggesting that the programme may have only been partially successful in fostering autonomous study skills.

INTRODUCTION

Learner autonomy is generally endorsed in language acquisition literature as a desirable concept that is conducive to successful study (Littlewood, 1999). Holec (1981) and Little (1995) both define

learner autonomy as the situation where students take control of their own learning, and Little suggests that this is something that can be taught. In a CALL context, Schwienhorst (2003) asserts that such autonomy is achieved through the facilitation of reflection and self-evaluation, while Reinders (2007) highlights the importance of monitoring

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what learners are doing. Independent learning of this nature can have long-term benefits (Littlewood, 1996) and is viewed as important in many English language universities. Indeed, difficulties in acclimatizing to this style of study may contribute in part to the reported problems that students experience when transitioning from high school to tertiary level education (Bailey, Hughes, & Karp, 2002; Parker, Summerfeldt, Hogan, & Majeski, 2004). Certainly, for Chinese students entering English-medium ‘western’ university courses, the challenge of learning to study autonomously is likely to be considerable, especially given the distinctly un-autonomous long hours and heavy homework loads that appear to be typical of Chinese high schools (Kuhn, 2011; XinHua, 2007; Zhang & Zhu, 2007).

Computer Assisted Language Learning literature has highlighted Virtual Learning Environments (VLEs) as one tool that can be used to facilitate learner autonomy (Dolle & Enjelvin, 2003), although some researchers also note that there is considerable variation in the way that students respond to them (Maltby & Mackie, 2009). Accordingly, this chapter reports on how a programme of quizzes in a Moodle-based VLE at an English medium university in China was used to promote autonomous language learning among first year Chinese students. The background section of the chapter details some descriptions of Chinese students’ typical patterns of learning, as well as exploring the relationship between VLEs and autonomous learning, and providing a brief justification for this study. Information is then provided about the programme of quizzes, as well as the university environment in which the study was conducted. Following this, the research methodology and results are presented, and suggestions are put forward for future research. Finally, conclusions are drawn regarding the extent to which the programme was successful in increasing students’ level of autonomy.

BACKGROUND

Chinese Learners and Autonomy

Given that the vast majority of students at Xi’an Jiaotong-Liverpool University (XJTLU), where this research was conducted, are Chinese, it was important to consider typical Chinese patterns of learning when designing our programme of quizzes. Some literature suggests that Chinese learners are generally passive and conforming (Lee, 1998; Vansteenkiste, et al., 2005), and Chang (2001; in Swan & Smith, 2001) identifies some key characteristics of traditional Chinese learners, claiming they are:

- Used to memorization learning (rote learning).
- Taught not to voice opinions or enter into discussion.
- Suspicious of games that are not obviously learning.

Together, these three characteristics could easily form a barrier to autonomous, student-centred approaches to language learning. As a partial explanation for the passive nature of Chinese students, Vansteenkiste et al. (2005) note that while students in western institutions are often encouraged to develop their own style of learning, such traits are usually not actively encouraged by teachers or parents in Eastern cultures. Indeed, Ho and Crookall (1995) conclude that is “easy to see why Chinese students would not find autonomy very comfortable, emotionally or indeed intellectually” (p. 237). However, even though Chinese students are commonly perceived as passive learners, Chang (2001; in Swan & Smith, 2001) points out that they are generally observed to work hard and often have to be dissuaded from learning.

The participants in the research described here were all first year students in their first semester at university; therefore, it seems reasonable to assume that their experiences at high school would

also have had a strong influence on their attitudes to learning. Indeed, there are reports (for example, Kuhn, 2011) suggesting that the workloads for students at middle and high schools in China are considerable, with some students in the classroom for 12 hours per day, spending no time ‘playing’ with friends, and working longer hours than their parents. The government has issued laws forbidding excessive after school work (XinHua, 2007), but with social pressure from parents, and teachers’ pay related to student performance, instances of students working long hours continue to be reported (Zhang & Zhu, 2007). This type of experience may also contribute to students’ confusion when they enter western educational institutions with far fewer hours of supervised and structured study.

VLEs and Autonomous Learning

As a tool for autonomous study, various types of VLE (Moodle, Blackboard, and 3C being the most popular) are now commonplace on nearly all western university campuses (95%, according to Joinson, 2006), with most courses having a presence online (Jarvis, 2008). Students are expected to use VLEs to take responsibility for their own learning, with teachers taking less responsibility for structuring exactly how and when study should take place (Littlewood, 1999). In theory, according to Maltby and Mackie (2009), VLEs offer a “Martini style of education” (anytime, anyplace, anywhere), but many students choose “Just in time education” instead. They suggest that those students who were already the “Mañnana Students” (tomorrow never comes) will never take advantage of the opportunities offered by “Anytime education.” As Lewis (2001; in Dolle & Enjelvin, 2003) points out, VLEs offer convenient, packaged solutions to save money and time, but simply providing the software does not mean that students use it effectively. The assertion that VLEs, by themselves, do not develop learner autonomy is also supported by several other researchers

(Morgan, 2012; Reinders & White, 2011; Hafner & Miller, 2011).

The freedom of content, time, and place that VLEs offer (Stockwell, 2011) may, in particular, be misinterpreted by Chinese students who are accustomed to highly structured, teacher-directed study from high school experiences such as those described in the previous section. It seems likely that such students will need considerable guidance on how to study autonomously using the VLE, with active monitoring of student usage (the importance of which is highlighted by Reinders, 2007) and facilitation of reflection and self-evaluation (the importance of which is noted by Schwienhorst, 2003). The provision of strong and clear guidance for learning tasks of this nature is also endorsed by Littlewood (1999), who suggests that, while East Asian students are often perceived to have a low level of autonomy in comparison to western students, they may have a higher level of “reactive autonomy.” Littlewood suggests that if tasks are expressed clearly, with a purpose that can be easily understood, East Asian students will work autonomously, either alone or in groups.

This Study

As VLEs have become a widespread choice for content learning (Motteram & Stanley, 2011), with 95% of UK universities using them (Joinson, 2006), there has been an increased interest in how these systems can be used to successfully facilitate language learning (Jarvis, 2008). More generally, Barajas and Owen (2000), Hill (2000), and Tong and Crook (2006) have called for further research into how to activate all types of learners and teachers to use VLEs. The study reported here responds to this call by describing an attempt to actively engage first year Chinese university students with a VLE for language learning purposes.

This chapter examines the extent to which a programme of quizzes on a VLE resulted in increased levels of autonomous study by students, as well as considering how some environmental

factors related to the design of the programme may have encouraged autonomous study. Moodle data from the entire first year student body, and questionnaire responses from a smaller sample of first year students were used for analysis. The Moodle data provides insights into the popularity of different quiz types, the amount of control students had over setting themselves weekly targets, and gives an estimate of how much time students spent on VLE self-study. The questionnaire responses indicate how autonomous students felt they were in their learning before and after the semester, and how much they felt that any increase in autonomy was attributable to the VLE programme of quizzes. They also provide information regarding students' feelings about two important aspects of the programme; the monitoring of progress by teachers, and the freedom to choose which quizzes to complete each week.

PROGRAMME DESCRIPTION

To fully describe the context for this study, this section has been divided into several subsections. First, background information about the English Language Centre (ELC) at XJTLU is given, followed by details about the usage of the VLE in the ELC. Finally, details are provided about the way in which the VLE was used in this study in an attempt to foster more autonomous learning among students.

The ELC at XJTLU and Its Use of VLEs

XJTLU is an English-medium university based in Mainland China, jointly opened by University of Liverpool (UK) and Xi'an Jiaotong University (China) in 2006. Students are required to complete four years of study in order to graduate, the first of which broadly corresponds to a foundation year in a UK university. Most of the contact hours that students have in the ELC occur during this first

year, with approximately ten hours per week of classes, the majority of which are conducted in classes of 20 students or less. From an initial intake of less than 200 in 2006, enrollee numbers have increased continuously. At the time of this study (the 2011-2012 academic year) there were over 2300 students registered in the first year.

The VLE in use at the university is based on Moodle, and this was previously used in the ELC for functions such as submission of student assignments, self-study via online quizzes and links to external educational sites, providing a portal for external learning software, and passing important information on to students. In addition, ELC tutors had their own VLE pages, on which they could use forums and post any activities they wished for their classes. However, the amount of work that individual tutors did on their pages was highly variable, so it was decided to create a more comprehensive central bank of activities for the first semester of the 2011-2012 academic year, in order to provide all students with more access to online resources related to their study. The development of these resources was also in response to previous years' student surveys, which suggested that most students were doing considerably less than the ten hours per week of self-study that was expected of them. It was thought that creating extra materials for the VLE would be an effective way of providing more readily available and relevant materials for students' self-study.

The VLE Project

Following on from the decision to develop more central materials for the VLE, a series of weekly quizzes, focusing on different areas of language study, was developed and implemented in the first semester of the 2011-2012 academic year. For each of the 12 regular teaching weeks of the semester, six or seven new quizzes were released, of which students were instructed to do at least three (there were seven different types of quiz, but not every type was represented for some of

the weeks). Students were given the freedom to choose which quizzes they did based on whichever area they felt they needed to work on; this element of freedom was intended to facilitate reflection and self-evaluation, as suggested by Schwienhorst (2003). They were also given a paper self-study guide, on which they had to fill in the quizzes they did each week. They were told that their tutor would monitor their performance on the quizzes and check this against what had been filled in on students' self-study guides at several points during the semester. This monitoring of students' progress follows on from the approach taken by Reinders (2007).

The quizzes used in this study were designed to each be approximately 20 minutes in length, although there was some variation. The types of quizzes that were released each week were as follows:

- **Pronunciation:** These focused on pronunciation of individual phonemes (with a particular emphasis on those sounds that are often problematic for Chinese students) and word stress.
- **Writing:** The writing quizzes examined aspects of academic writing such as basic paragraph structure, analyzing essay questions, writing introductions, and academic style.
- **Grammar:** These focused on aspects of grammar such as word form, verb tenses, articles, and subject and verb agreement.
- **Reading:** Reading quizzes examined the skills of skimming, scanning, and guessing the meaning of vocabulary from context in texts on a variety of themes.
- **Listening:** These required students to listen to short presentations and lectures on a variety of topics, make notes and then answer comprehension questions.
- **Vocabulary:** These focused on vocabulary from the first four sublists of the Academic Word List (Coxhead, 2000). Each quiz in-

roduced students to 20 vocabulary items via example sentences, then required them to match the words with definitions, unscramble them, then complete a cloze task.

- **Lecture Quiz:** These tested students on the content of their weekly lectures. The lectures were held once a week and focused on topics relevant to academic reading and writing, such as academic style, construction of complex sentences, and vocabulary learning strategies.

The aim of the approach adopted for administering the quizzes was to provide students with some degree of autonomy in their self-study by giving them the freedom to choose which quizzes to do, but to still have some level of monitoring. It was felt that this might give students a gentler transition from their highly structured study at high school to the autonomous and relatively unmonitored study that they would be expected to engage in later on in their university careers. Student engagement in self-study was considered an issue of concern, given the low levels of engagement that students had reported in previous years' questionnaires. The remainder of this chapter describes the authors' efforts to measure the effectiveness of the above approach to self-study, using both VLE usage statistics and questionnaire data.

DATA COLLECTION AND ANALYSIS METHODS

Statistical Data from Moodle

Over the course of the semester during which the self-study materials were trialed, a weekly record was kept of the number of times each student had completed the quizzes and the scores that they achieved. This data was used to compare overall usage rates of VLE self-study materials to previous years, as well as to analyse usage trends and

the popularity of different types of quiz within the system. The scores shown in the results and discussion section were recorded automatically by Moodle, and where appropriate were divided to give the average per student, in order to account for increased student numbers in comparison to previous years.

Terms Used in Moodle

- “Clicks” is used to show how many times a page was viewed, so the total number of clicks represents the total number of times a student (or teacher) has clicked on a page within the self-study domain.
- “Views” is used in Moodle to show how many times a quiz is looked at by a student. Students may view a quiz without actually completing any of it.
- “Quiz Attempts” is used to show how many times students completed an entire quiz. The number of attempts is normally significantly lower than the number of views.

Questionnaire Data

In addition to gathering statistical data from Moodle, an online questionnaire was conducted during the final week of the semester. The questionnaire aimed to discover what students thought of the quizzes, and whether they felt the way in which the quizzes were given to them had helped them to organize their own self-study and become more autonomous in their learning.

Sample

The sample selected for the online questionnaire consisted of five classes of first year students; giving a total of 99 participants. It was decided to conduct the questionnaire on only a small proportion of the first year, as a previous voluntary online questionnaire to the entire first year had resulted in very low response rate (approximately

700 responses from over 2300 potential respondents). A response rate as low as that would have meant that results obtained could not be considered indicative of the majority of students’ opinions. Administrative and time constraints meant that it would not have been possible to follow-up with every student who did not respond in a sample that large. With this in mind, it was felt that selecting a sample of the first year population and using follow-up emails to ensure a high response rate would produce more generalizable and useful results than a questionnaire that was open to the entire first year student population.

Instrument

The questionnaire was constructed using Surveygizmo (2011), an online survey hosting site, and included a research consent form and two sections containing 20 and 25 Lickert scale items respectively. Finally, there was a text box for participants to leave any comments they wished about the quizzes (see Appendix for the full questionnaire). All of the instructions and items were written in English, given that the university is an English language medium institution, but effort was made to use only high frequency vocabulary in order to avoid any misunderstandings.

The first section of the questionnaire consisted of five multi-item scales to measure the following five concepts:

- **“Monitoring Feelings”**: How positively or negatively students felt about being monitored.
- **“Freedom Feelings”**: How positively or negatively students felt about having the freedom to choose which quizzes they did each week.
- **“Previous Autonomy”**: Level of learning autonomy before coming to XJTLU.
- **“Current Autonomy”**: Level of learning autonomy at the time of the study.

- **“Autonomy from Quizzes”**: The extent to which the programme caused students’ level of learning autonomy to increase.

Each scale had four items, two of which were phrased positively and two of which were phrased negatively. All items were randomized by the survey software, so each participant would see the items in a different order. It was intended that the above scales could be used to ascertain the extent to which students felt they had become more autonomous learners during their first semester at XJTLU (by comparing Previous Autonomy and Current Autonomy), and that any increase in learning autonomy was in part attributable to doing the VLE quizzes (by examining the Autonomy from Quizzes scale). Correlations between Autonomy from Quizzes and the Monitoring Feelings/Freedom Feelings scales were also to be examined, to see if either limited monitored or limited freedom of choice may have been significant in any perceived increase of learning autonomy.

The second section of the questionnaire focused mainly on information that could be used to improve the quizzes in the future, some of which also related to the scales in the first section. Although this report is primarily concerned with the first section of the questionnaire, some reference is made to the questions in this second section where relevant. Piloting of the questionnaire with two ELC tutors suggested that it would take approximately ten minutes in total to complete. A few minor changes in wording were made following the pilot, but the overall structure of the questionnaire remained unchanged.

Procedure

Students in the five selected classes were sent emails with a link to the online questionnaire, requesting that they participate in this part of the study. They were initially instructed to complete the questionnaire within five days, and then non-respondents were emailed again to request partici-

pation a second time. Follow-up with students that did not respond continued every few days until three weeks had passed since the original release of the questionnaire. At that point, 90 usable data sets had been collected, which constituted a 90.91% response rate. This was considered to be acceptable for the purposes of this study, in that the results could be considered representative of the vast majority of the students in the sample.

Data Handling

The response data from the online questionnaire was downloaded into a spreadsheet and results from negatively worded items were reversed. Cronbach Alpha coefficients were then calculated to check the reliability of the five multi-item scales in the first section. It was found that the coefficients in the Freedom Feelings, Previous Autonomy, and Current Autonomy scales were rather low when all four items in each scale were included, so two items were deleted from each of these scales to give the coefficients displayed in Table 1.

Even after deleting some of the items, several of the coefficients were still a little low. However, given that decreasing the number of items generally makes it more difficult to achieve a high Cronbach Alpha coefficient, and also considering that the wording of the remaining items in each low coefficient scale were very similar, the researchers felt confident that these scales were measuring single concepts. It should also be noted that all of the items that were deleted were

Table 1. Reliability analysis for multi-item scales

Scale	Number of Items	Cronbach α
Monitoring Feeling	4	.77
Freedom Feeling	2	.60
Previous Autonomy	2	.62
Current Autonomy	2	.68
Autonomy from Quizzes	4	.76

negatively phrased, which may have resulted in slightly more positive scores for the Freedom Feeling, Previous Autonomy and Current Autonomy scales, relative to the remaining two scales.

RESULTS AND DISCUSSION

Statistical Data from Moodle

Comparison to Previous Semesters

The self-study page was widely used by many students, and Figure 1 shows the number of clicks on VLE pages over the past three semesters. Previously, there were just over 100 clicks per student on average, but following the introduction of the programme of quizzes, nearly 600 clicks per student were recorded, with the self-study page (where the quizzes were hosted) accounting for over 300. However, some other new VLE-related innovations were also introduced during the semester of the study, and these may have contributed to the increase in usage too. These innovations included students' access to all handouts online, increased compulsory assessments, and providing better training for tutors in how to give essay feedback through Moodle.

Average Clicks and Attempts per Student

Students were instructed to complete at least three quizzes per week by tutors. Table 2 shows the total quiz views and attempts for the whole semester. On average, students completed 2.6 quizzes per week, which was just under the recommended number. However, it should be noted that this figure might include multiple attempts at the same quiz by some students. Despite this, the total of over 70,000 completed quiz attempts still represents a significant amount of self-study when compared to a total of less than 10,000 lecture quiz attempts in all previous academic years together.

Additionally, the statistics indicate that students viewed, without completing, 6.3 quizzes per week. As Moodle did not record partial attempts, it is not clear how many of these views also included work on the quizzes; it is quite possible that in many cases students were simply unable to finish quizzes because of time constraints or Internet connectivity problems. Given this uncertainty, the maximum possible estimate that could be made, based on the Moodle statistics, for time that students spent on the quizzes would be over two hours per week (assuming that every view resulted in 20 minutes of work). The minimum estimate that can be made is based on the number of recorded quiz attempts, which suggests that just under one hour per week on average was spent doing the quizzes. In reality, the average amount of work done is probably somewhere between these two figures (see Figure 2).

Breakdown of Attempts by Quiz Type

As some quiz types had 10 quizzes and others had 12, the average number of quiz attempts per quiz type was used to explore which quiz is most popular (see Table 3). As mentioned in the introduction, Chinese students have typically spent numerous hours rote learning the rules of English, such as vocabulary and grammar, so it is quite surprising that the same students chose

Table 2. Quiz views and quiz attempts for the whole semester

	Quiz Views	Quiz Attempts
Total for all students all semester	178098	72006
Average per student	75.8	30.6
Average per student per week	6.3	2.6
Estimated time (minutes) spent (20 minutes per quiz)	126	51

Figure 1. Average clicks per student on all VLE pages

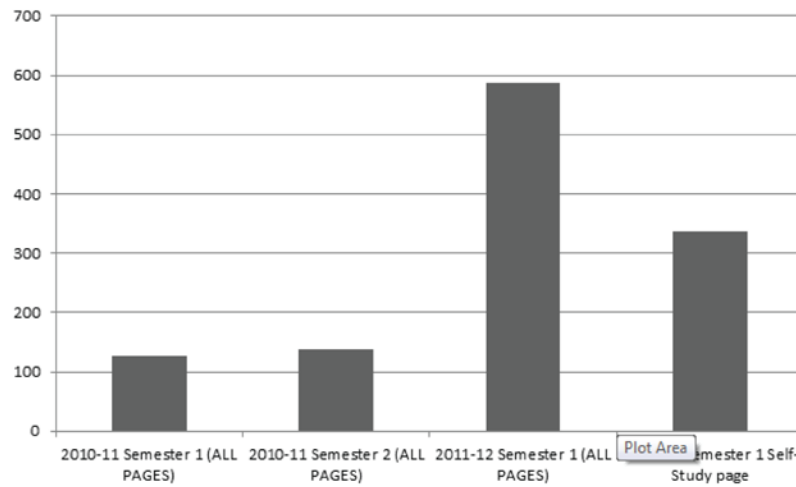


Figure 2. Number of attempts for three types of quizzes

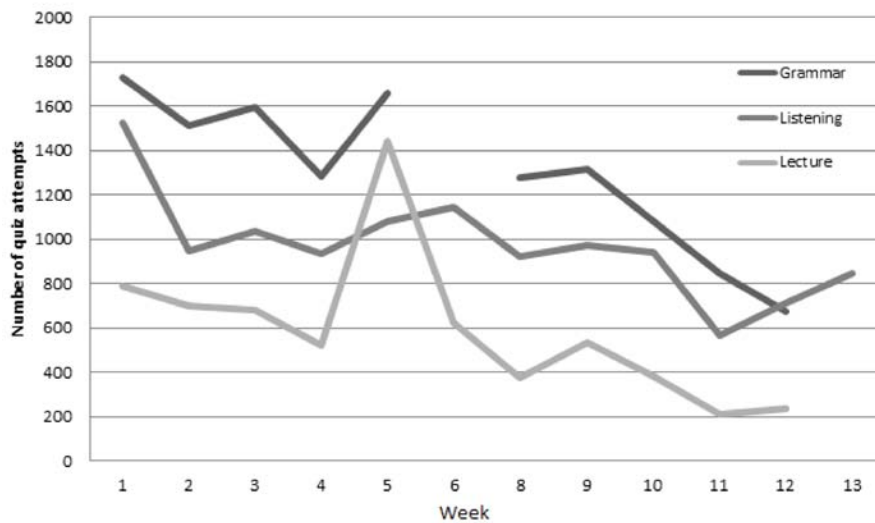


Table 3. Number of attempts for each quiz type

	Lecture	Writing	Reading	Listening	Speaking	Vocabulary	Grammar	Mean for all quizzes
Total	6658	7125	10810	11636	9672	13138	12967	72006
Mean number of attempts per quiz	554.8	712.5	900.8	969.7	1074.7	1094.8	1296.7	943.4

(Ordered from low to high)

to take more quizzes on these topics. It may be that grammar and vocabulary are seen by students as particularly important, having been tested so many times in the past.

The least popular quiz types were writing and lecture quizzes. With both of these types of quiz, there were plausible reasons why students may not have been motivated to take them. Lecture quizzes were given during lectures to check attendance, and then repeated online so students could check answers. It is possible that many students were already confident in their answers, so they did not feel the need to repeat the quizzes. The writing quizzes were prepared in a formal 'Teach-test' style, with several webpages of description before the quiz started. Some students had commented in a previous questionnaire earlier in the semester that the writing quizzes they had taken at that point were too easy for them.

The number of attempts for all the quiz types displayed a downward trend as the semester progressed, mainly as students stopped returning to take quizzes from previous weeks. However, there were some noticeable exceptions to this trend; there were a large number of attempts on lecture quizzes in week five, and there was a rise in the number of attempts for listening in weeks 12 and 13. The large number of attempts on the lecture quizzes in week five can probably be explained by the fact that there were actually two lecture quizzes released that week; one on vocabulary and one on content. The listening quizzes in weeks 12 and 13 were on the topic of an assessed coursework essay (in fact, one of them was a recommended source of information for the essay), which may have motivated more students to do them.

On average, each quiz was taken nearly 950 times by students, and while the quizzes at the beginning of the semester averaged nearly 1500 times, the end of semester average was only about 500. This could suggest that more effort should be devoted to developing quizzes for the beginning of the semester (as more students are likely to do these) or increasing student motivation later in

the semester to complete the quizzes. The reason for this difference is probably a combination of students being more motivated at the start of the semester, and the fact that quizzes released at this time are available online for longer.

Weekly Breakdown of Quiz Attempts

Figure 3 shows the number of quiz attempts each week. While students were told to complete three quizzes per week, and the quizzes were made to coincide with the curriculum goals of each week, it is clear from the graph that many students were not completing the quizzes until teachers reminded them. Indeed, the average number of quizzes per student varies enormously between the weeks, with weeks five and ten having more than four quizzes per student, but other weeks having less than two quizzes per student. This raises questions about how successful the programme of quizzes was at encouraging students to organize their self-study in a regular and structured way and how effective the teachers were in reminding/encouraging the students.

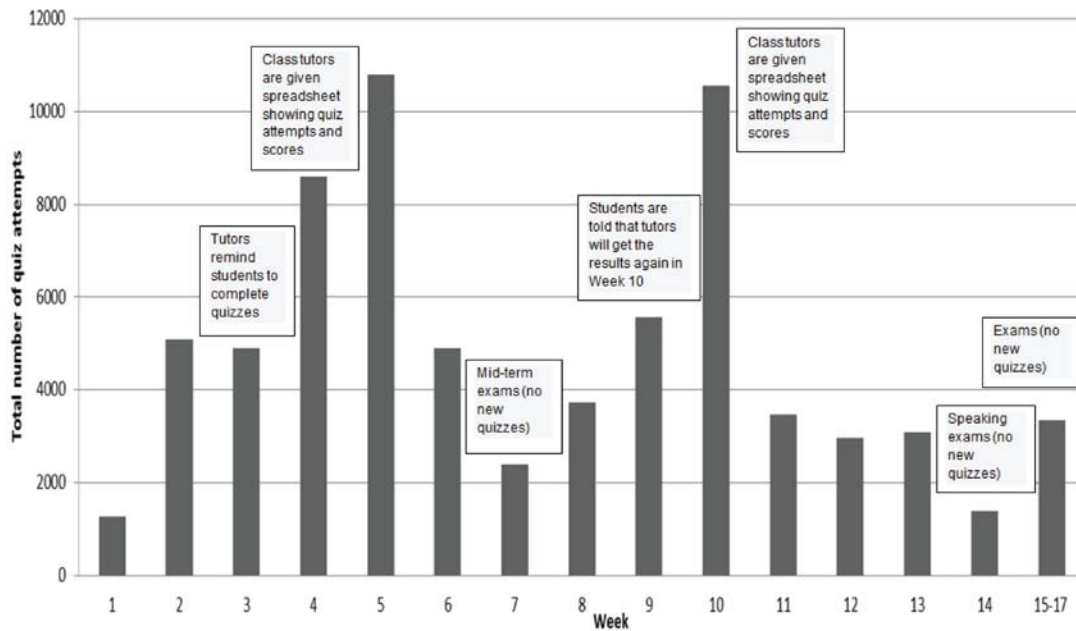
It can also be seen that students continued to complete quizzes after the end of the semester, during the oral exam weeks, reading and exam weeks. This could suggest that new quizzes should have been produced for these periods as there was still some demand, albeit rather less than at the start of the semester. Tutors felt that this period could be left for students to review previous quizzes; however 'review quizzes' could perhaps have been made to give students more motivation, thus reinforcing their autonomous learning ability.

Discussion of Moodle Data

Motivation and Types of Quiz

On average, each student in this study attempted 2.6 quizzes per week. This represented a significant increase in the amount of self-study compared to previous years, which hopefully contributed to

Figure 3. Total number of quiz attempts each week



improve students' English learning outcomes. In addition, the types of quiz taken by the students may help inform how similar quizzes are made in future, although further research would be needed to discover the exact reasons for students' preferences. Some general trends observed were:

- Repeating quizzes that had already been implemented in lectures was not popular.
- 'Teach-test' quizzes that try to teach a point before testing it were unpopular, and could be adapted in future so students have to interact with each page (i.e. rather than reading instructions, students should have an activity to do on each page).
- Topics for reading and listening quizzes that were not only relevant, but also helped the students in their classes (such as the listening, which was also a source for a coursework essay) had relatively high participation rates.

Doing 3 Quizzes per Week: A Lot or Not Enough?

As can be seen from Figure 1, the levels of VLE usage increased almost six-fold in this study when compared to previous semesters. The VLE appeared to have become a useful, interactive learning environment for students, with focused self-study on areas that relate directly to the learning objectives in class. Over 70,000 attempts were made at quizzes, which were estimated to account for between one and two hours per week of self-study time. While this seems to have been a good response to the materials, it also raises questions about what students in the ELC are doing with the remaining eight or nine hours of self-study time, that is expected of them. These other self-study activities that students are expected to engage in are, unlike the programme of quizzes, completely unsupervised.

Self-Study or Homework?

It had been envisaged that students would complete three quizzes each week of the semester and that scores would be seen by tutors at two points within the semester (weeks five and ten). As Figure 3 illustrated, while some students were completing quizzes each week, there were large spikes in numbers around the time teachers were given the scores. In effect, it appeared that many students were not seeing the quizzes as self-study, but more as a form of deadline-driven homework. The fact that so many students waited until just before their teacher was going to check their scores suggests that the programme described here may not have been entirely successful in encouraging students to plan and implement self-study on a regular basis. This finding also indicates that being monitored may be an important factor for Chinese students when using VLEs, and that implementing more regular monitoring of progress may be worth considering for programmes of this type.

Questionnaire Data

General Results

The descriptive statistics for the five scales in the first section of the questionnaire are displayed in Table 4.

Table 4. Descriptive statistics from the questionnaire multi-item scales (1=low/negative, 5=high/positive)

<i>n</i> = 90	M	SD
Monitoring Feeling	3.35	.69
Freedom Feeling	3.88	.69
Previous Autonomy	2.95	.95
Current Autonomy	3.50	.84
Autonomy from Quizzes	3.67	.67

All of the scales except Previous Autonomy had means above 3, although both Previous Autonomy and Current Autonomy did also have quite high standard deviations. This generally suggested that students felt positively about both being monitored by their tutors and being given a choice of which quizzes to do, as well as feeling that their ability to study autonomously had increased as a result of participation in the programme. A more in depth analysis of the data with respect to these issues is presented below. Normality of the scales was checked using Kolmogorov-Smirnov tests, and several of the distributions were found to have significant deviations from normality. As a result, it was decided to use non-parametric statistical tests when analyzing the results.

Did Students Think They Were Able to Study more Autonomously after Doing the Quizzes than Before?

In order to answer this question, the Previous Autonomy and Current Autonomy scales were compared. As mentioned above, the mean for the Previous Autonomy scale was below 3, suggesting a relatively low level of autonomy, and markedly lower than that for the Current Autonomy scale. Given the non-normality of the data, a Wilcoxon signed-rank test was used to check if this difference was statistically significant. This test produces a Z value, which is a standardized representation of the difference between means, based on standard deviation. A Z value greater than 1.96 or less than -1.96 would represent a statistically significant difference in means. The results of the test ($Z = -4.30, p < .001$) did indicate a significant difference, suggesting that students did believe that their level of study autonomy at the time of the questionnaire was higher than it was before they entered university. This is interesting, especially in the light of the statistics from Moodle, which suggested that a large number of students were not engaging in self-study on a regular, weekly

Table 5. Questionnaire section two responses relating to feelings about being monitored

Questions	Number of responses				
	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Having my teacher see the results motivated me to do more self-study	0	18	29	29	14
Teachers should not see the quiz results as it is self-study	8	27	41	11	3
Next semester I think teachers should not check on our quiz results	9	20	46	14	1

basis, as had been intended. However, this may still represent an improved level of learning autonomy in comparison with high school, if students' questionnaire responses are to be believed.

Was Any of the Increase in Perceived Study Autonomy Attributable to Doing the Quizzes?

The relatively high mean and low standard deviation of the Autonomy from Quizzes scale indicates there was some agreement among students that doing the quizzes had helped to improve their ability to study autonomously. While there may also have been other aspects of their university experience that contributed to the rise in perceived autonomy, the data from this questionnaire strongly suggests that the programme of quizzes had an effect in this respect. This also indicates that the approach taken in this study may be one that is well suited to Chinese learners.

Did Being Monitored or Being Given a Choice of Quizzes Lead to an Increase in Autonomy?

Two important aspects of quiz administration were the fact that participation was monitored by teachers, and that students had the freedom to choose which quizzes to do each week, rather than having to do all of them. It was speculated that these two factors may have acted as helpful "stepping stones" between the highly structured

study schedule of high school and the highly autonomous study that would be expected of students in their future university careers. With this in mind, correlations were examined between students' perceptions of how helpful the quizzes were in fostering autonomy and how positively students felt about each of the two factors mentioned above. Significant correlations may indicate that these factors were helpful in promoting autonomy.

Correlation between the Monitoring Feeling scale and the Autonomy from Quizzes scale was measured using the Spearman coefficient, owing to the non-normality of the data. This coefficient takes a value between 1 and 0 (just as the Pearson coefficient does), with high values indicating strong correlation and low values indicating weak correlation. A relatively weak, but still significant correlation was found ($r_s = .376, p < .01$), which suggests that being monitored by a teacher over the course of the semester may have had some positive effect on students' levels of autonomy in study. Although this may seem counter-intuitive, it should be noted that the level of monitoring was quite limited, and there were no penalties for failing to complete quizzes on time. This probably represented significantly less monitoring than in high school, but the fact that there was still some monitoring may have helped students to transition more gently into autonomous study at university. Results from section two of the questionnaire also revealed a generally positive response to being monitored (see Table 5).

Table 6. Questionnaire section two response relating to feelings about being given a choice of quizzes to do each week

Questions	Number of responses				
	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Students should do all 7 quizzes per week	21	41	14	9	5

The Spearman coefficient for correlation between the Freedom Feeling and Autonomy from Quizzes scales was also significant ($r_s = .323, p < .01$), but slightly weaker than that reported with the Monitoring Feeling scale. Again, this suggested that giving students limited freedom of choice with regard to which quizzes to do each week may have had some positive effect on their level of study autonomy, although this effect was likely weaker than that of monitoring progress. It should also be taken into consideration that the Freedom Feeling scale had a relatively low Cronbach Alpha coefficient, which indicates that this result may be less reliable than the correlation with the Monitoring Feeling scale. The response to one of the questions from section two of the questionnaire (displayed in Table 6) also suggested that students did like having a choice of which quizzes to do. Overall, these results seem to indicate that both regular monitoring and providing freedom of choice are important when encouraging students to engage in autonomous study via a VLE; however, they also suggest that regular monitoring may be a more important factor.

FUTURE RESEARCH DIRECTIONS

The results detailed in this chapter indicate a number of possibilities for future research. In particular, the apparent contradiction between students reporting an improved ability to organize their own study and the uneven distribution of quiz attempts across the weeks of the semester

suggests that more work is required to discover in detail how VLE-based activities, such as the one described here, affect self-study habits. It would be useful for a study with a control and experimental group to be conducted, in order to more accurately measure the effect that such VLE activities have. Additionally, further investigation is needed into the optimal number of quizzes that should be made available, the optimal proportion of quizzes that should be made compulsory, and the extent to which teachers should monitor student performance when creating a programme of the kind described in this chapter.

This study has focused only on quizzes, but another interesting area for investigation would be student participation in VLE-based online discussion-based activities. Given the different nature of this type of activity, it is possible that results may be quite different. Finally, as the focus of this study has been on Chinese students, there is also a need to investigate the effects of similar programmes in different cultural contexts. In particular, monitoring may be a less significant factor in cultural groups where teachers are not viewed with same reverence as in China.

CONCLUSION

The implementation of VLE-based self-study quizzes in this study resulted in drastically increased usage rates of the VLE compared to previous semesters, as measured by the average number of clicks per student. Participation rates in the quizzes were very high, and it is estimated

that students spent on average between one and two hours per week during the semester working on quizzes. There was some variation in the popularity of each different quiz type, which may in part have been influenced by quiz format and whether students had already encountered the quiz questions in a lecture. One further trend observed was that, on average, quiz attempts per week declined as the semester progressed. It was unclear whether this downward trend may also have been echoed in students' other, unsupervised self-study, and further investigation would be necessary to clarify this.

In addition to providing useful study resources for Chinese students, the programme of quizzes was also intended to encourage them to become more autonomous learners. It was hoped that the quizzes would help students to plan and organize their own study time, as well as to select relevant learning materials by themselves. Questionnaire data suggested that students themselves perceived they had become more autonomous in their learning, and that some of this increase in autonomy was due to the quizzes. Correlation analysis indicated that limited monitoring by teachers of quiz performance and having the freedom to choose which quizzes to do each week may both have been significant factors in improving autonomy. On the other hand, statistical data from the VLE suggested that many students were in fact not organizing their study on a regular weekly basis. Instead, there were significant peaks in quiz completion rates around the times when teachers checked on students' progress, with considerably lower completion rates at other times. These seemingly conflicting results suggest that monitoring in particular may be of great importance when encouraging Chinese students to study autonomously, but also that more research needs to be done on how VLE-based activities interact with students' levels of autonomy in study.

When interpreting the results of this study, a few important limitations need to be taken into consideration. Firstly, the data for the number of

clicks per student from Moodle that is used in this report may not be reflective of how much time students actually spent on different activities. It is possible that some students clicked on large numbers of links, without really engaging with any of the materials. Secondly, the opinions of the sample of students used for the questionnaire may not have been entirely representative of the entire first year population of the university, given that it only constituted a small proportion of the first year student body. Finally, almost all of the data analysed in this chapter came from Chinese students, so it is not clear whether similar results would be obtained if the same activities were conducted with groups of students of other nationalities. Despite these limitations, the authors feel that the results obtained do give an important insight into how VLEs can be used for English language learning purposes, and how Chinese students interact with VLEs as a self-study platform. It is hoped that further research, such as that suggested above, will be conducted to build on the findings of this study.

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APPENDIX

Questionnaire Items

Section 1

Please select one of the following options for each of the statements listed below:

1=strongly disagree, 2=disagree, 3=neither agree nor disagree, 4=agree, 5=strongly agree

Before coming to XJTLU I used to plan my own study, not just follow my teachers' directions.

Now, I only do homework given to me by teachers, with no extra self-study.

Before coming to XJTLU I did self-study that was not given to me as homework.

I liked being able to choose which quizzes to do each week.

It was good that we had a choice of quizzes every week.

I would have preferred that teachers did not check our ICE quiz results.

I liked the fact that teachers checked our results on the ICE quizzes.

I did not like the fact that teachers checked our results on the ICE quizzes.

I thought it was good that teachers checked which ICE quizzes we did.

I now plan my own study, not just follow my teachers' directions.

I did not like having to choose which quizzes to do each week.

ICE quizzes have not helped me to organize my self-study time.

Now, I only study if I am given homework by my teachers.

Before coming to XJTLU I only studied if I was given homework by my teachers.

I think ICE quizzes have helped me to plan my own self-study.

I do not think that ICE quizzes helped me to plan self-study by myself.

I would have preferred to be told exactly which quizzes to do every week.

I now do self-study that is not given to me as homework.

Doing ICE quizzes has helped me to organize my own self-study.

Before coming to XJTLU I did homework given to me by teachers, but not any extra self-study.

Section 2

Please select one of the following options for each of the statements listed below:

1=strongly disagree, 2=disagree, 3=neither agree nor disagree, 4=agree, 5=strongly agree

I found the speaking quizzes interesting.

I found the grammar quizzes interesting.

I found the listening quizzes interesting.

I found the writing quizzes interesting.

I found the reading quizzes interesting.

I found the vocabulary quizzes interesting.

I found the lecture quizzes interesting.

I think that doing 3 quizzes per week is not enough to be helpful.

Using a Virtual Learning Environment to Promote Autonomous Language Learning

The quizzes should have more questions.

The topics for the quizzes were not relevant to students.

Having my teacher see the results motivated me to do more self-study.

Teachers should not see the quiz results as it is self-study.

The quizzes should be more difficult to really test students.

The quizzes could be part of the grade for the semester.

If the quizzes counted to the semester grade, I would be more motivated to do the self-study.

Students should do all 7 quizzes per week.

All quizzes should be released from the start of the semester.

There should be prizes for completing all the quizzes to motivate students.

ICE was the easiest type of self-study to complete.

I would rather work on paper than computer.

The books (Vocabulary and graded reader) were not as interesting as ICE self-study.

I enjoy working on computers now more than I did at high school.

Next semester I think teachers should not check on our quiz results.

I will do more quizzes on ICE next semester.

The quiz topics were relevant to the work we did in class.

If you have any other comments about ICE quizzes, then please leave them here.